over Key et al. in view of Ohtomo et al., Inoue et al. and Kitajima, and claim 4 as being unpatentable over Key et al., Ohtomo et al., Inoue et al. and Kitajima in view of Schreuder. The Examiner states that Key et al. disclose a distance measuring system for measuring distance by receiving a reflection light beam from an object to be measured, the system comprising an arithmetic unit, a light emitting unit for emitting a measuring light beam and a photodetection unit for receiving the reflection light beam from an object to be measured and for issuing a signal based on a photodetection amount of the reflection light beam. The Examiner states that there is provided presorted data that is obtained by associating the measured distance and the photodetection amount of the reflection light beam according to the object to be detected, wherein the control arithmetic unit compares the reflection light beam from the object to be measured as a result of the distance measurement based on the reflection light beam and the presorted reference data.

The Examiner admits that Key et al. do not disclose a measuring system configured to determine whether the object to be measured is a prism or a natural object based on the result of the comparison, nor do Key et al. disclose a storage unit or a mode changing switch. The Examiner takes official notice that displays are conventional and would be obvious to use one for the purpose of viewing results. The Examiner cites Ohtomo et al. for its disclosure of a object detection scheme wherein a particular object is distinguished over another based on a characteristic reflected light signal. Inoue et al. is cited for its disclosure of apparatus including a storage unit configured to store values based on distance measurements as reference values to be used by a discrimination unit. Kitajima is cited for its disclosure of apparatus comprising a mode switching mechanism. The Examiner concludes that it would have been obvious to modify the system of Key et al. to configure it to determine whether the object to be measured is a prism or a natural object as taught by Ohtomo et al., and to modify the Key et al. system to incorporate a storage unit as taught by Inoue et al. and

a mode-changing switch as taught by Kitajima.

By the accompanying amendment, claim 1 has been amended to recite that the distance measuring device includes a light amount adjuster for adjusting an amount of light which enters the photodetection unit. Support for the amendment can be found at pages 14-16 of the specification. Based upon the adjusting amount of the light amount adjuster, the distance measuring system of the present invention judges whether the object to be measured is a prism or a natural object. When the judgment can be attained, the distance measurement is performed.

The Examiner admits that Key et al. do not disclose a measuring system configured to determine whether the object to be measured is a prism or a natural object based on the comparison of the data, and cites Ohtomo et al. as supplying this deficiency.

Ohtomo et al. relates to a leveling apparatus which rotates a laser beam. The apparatus comprises components for detecting a reflection light beam only from a reflection sheet (target). Between the reflection light beam from the reflection sheet and a reflection light beam from the other object, Ohtomo et al. distinguishes by using the polarization direction of the received reflection light beam. When the target is identified, reciprocal scanning is performed around the target.

In contrast, the present invention as now claimed includes the light amount adjuster, and the distance measuring system of the invention judges whether the object to be measured is a prism or a natural object based on the amount of light. Ohtomo et al. uses polarization, and thus determines whether a reflector is a target or not according to the polarization direction. Ohtomo et al. do not disclose or suggest distinguishing between a prism and a natural object using the amount of light. Accordingly, the present invention as now claimed is believed to be patentable over the combination of Key et al. and Ohtomo et al.

Inoue et al., Kitajima and Schreuder do not supply the deficiencies of Key et al. and Ohtomo

et al.

Claims 3 and 5 are amended to further define the invention. Claims 2, 4 and 6-7 are amended for consistency.

The remaining prior art is believed to have been properly not relied upon in rejecting any claim.

Reconsideration and allowance are respectfully requested in view of the foregoing amendment and remarks.

Respectfully submitted,

Kevin S. Lemack
Reg. No. 32,579
176 E. Main Street - Suite 7
Westboro, Massachusetts 01581
TEL: (508) 898-1818

Version with Markings to Show Changes Made

1. (Three times amended) A distance measuring system for measuring distance by receiving a reflection light beam from an object to be measured, comprising a control arithmetic unit, a storage unit, a light emitting unit for emitting a measuring light beam, [and] a photodetection unit for receiving said reflection light beam from said object to be measured and for issuing a signal based on a photodetection amount of said reflection light beam, a light amount adjuster for adjusting an amount of light entering said photodetection unit, a mode changing switch, and a display unit for displaying the result of a calculation of said arithmetic unit, wherein said mode changing switch selects whether said object to be measured is a prism or a natural object, said storage unit prestores a photodetection amount of a reflection light beam from the prism according to the distance and a photodetection amount of a reflection light beam from the natural object according to the distance, said light amount adjuster adjusts the photodetection amount of said reflection light beam received by said photodetection unit at an approximately constant amount and obtains an amount of the reflection light beam based on the result of the adjustment, said control arithmetic unit compares the obtained amount of the reflection light beam and [between] the photodetection amount of said reflection light beam [that is received by said photodetection unit and said photodetection amount of said reflection light beam] from said prism or said natural object that is prestored in said storage unit, and judges whether said object to be measured is the selected object to be measured based on the result of the comparison, and said display unit displays the result of said judgment by said control arithmetic unit.

2. (Three times amended) A distance measuring system according to claim 1, wherein said light amount adjuster [photodetection unit] comprises a density filter for adjusting said photodetection amount of said reflection light beam from said object to be measured, said storage unit prestores an adjusting position of said density filter according to the distance to the prism and to the natural object,

and said object to be measured is judged based on the adjusting position of said density filter.

3. (Amended) A distance measuring system according to claim [2] 1, wherein data is obtained by associating the photodetection amount of said photodetection unit before the light amount adjustment with the measurement distance, and the data is stored as reference data for judging said object to be measured [said density filter is a disk where density is continuously changed in a circumferential direction, said density filter is rotated by a stepping motor, and said density position corresponds to a number of rotating steps of said stepping motor].

4. (Amended) A distance measuring system according to claim [1] 3, wherein said reference data relating to the reflection of said object to be measured contains change of said photodetection amount due to weather conditions as a tolerance value.

5. (Amended) A distance measuring system according to claim 1, [further comprising a display unit,] wherein said mode changing switch selects a prism mode for using said prism as said object to be measured and a non-prism mode for using said natural object as said object to be measured based on the [a] result of judgment [on] of said [object to be measured is displayed on said] display unit.

6. (Three times amended) A distance measuring system according to claim [1] 5, wherein there are provided at least a prism measurement mode and a non-prism measurement mode, and when said prism mode is selected, said distance is displayed on said display unit only when said object to be measured is judged as a prism, and a warning that collimation in not performed [the fact that said object to be measured is not a prism] is displayed on said display unit when said object to be measured is not judged as a prism.

7. (Three times amended) A distance measuring system according to claim [1] 5, wherein photodetection sensitivity can be automatically changed over according to said photodetection amount

of said reflection light beam from said object to be measured, the light amount is adjusted by the light amount adjuster, it is judged whether said object to be measured is the selected object to be measured according to said photodetection amount, and the result of the judgment is displayed on said display unit.